



Solar Water Heater

95

At right, Dr. Eldon Haines of Sage Advance Corporation, Eugene, Oregon is installing a collector of the novel Copper Cricket™ solar water heating system he designed. *Shown below* is a U.S. Forest Service (USFS) installation at Tonto (Arizona) National Forest of Sage Advance's Copper Dragon™, a larger system that in this installation provides hot water for restrooms and shower facilities in a USFS campground site. Both systems represent technology transfers of the personal know-how variety, because they are based on expertise acquired by Dr. Haines during

his 13 years service with Jet Propulsion Laboratory, a NASA field center.

Dr. Haines' patents in "geyser pumping" and bubble nucleation, the basis of Sage Advance's systems, are an outgrowth of his NASA experiences. While at JPL, Dr. Haines' work led him to study the solar energy source and the state of the art of solar water heating. He concluded that he could build a superior solar hot water heating system by employing the geyser pumping principle in a device that combines the best features of



active and passive systems.

In 1977, Eldon Haines resigned from JPL to devote full time to development of his system. A decade later, with two associates, he formed Sage Advance to market the geyser pumping technology. The company's initial project is the Copper Cricket residential unit, designed to provide 50-90 percent of the hot water requirements for an average person household; it has no moving parts, is immune to freeze damage, needs no roof-mounted tanks and features low maintenance. Sage Advance later expanded the product line to include the Copper Dragon large commercial arrays.

Dr. Haines remains with the company as vice president for research and development, and he continues working for NASA as a consultant. ●

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96

AN ENGINEER'S NASA-

ACQUIRED KNOW-HOW

SPAWNS A NEW TYPE OF

SOLAR WATER HEATER